

NETWORK ROUTING USING INDIRECT NEXT HOP DATA

ABSTRACT

A router maintains routing information including (i) route data representing destinations within a computer network, (ii) next hop data representing interfaces to neighboring network devices, and (iii) indirect next hop data that maps a subset of the routes represented by the route data to a common one of the next hop data elements. In this manner, routing information is structured such that routes having the same next hop use indirect next hop data structures to reference common next hop data. In particular, in response to a change in network topology, the router need not change all of the affected routes, but only the common next hop data referenced by the intermediate data structures. This provides for increased efficiency in updating routing information after a change in network topology, such as link failure.